CLAIMS

What is claimed is:

1. A method for compensation of frequency offset between a first transceiver device and a second transceiver device, the first transceiver device and the second transceiver device communicating in order to exchange data packets, the method comprising:

transmitting a plurality of frequency synchronization bursts from the first transceiver device;

receiving at least one of the plurality of frequency synchronization bursts at the second transceiver device;

adjusting the second transceiver device's operating frequency to match the frequency of the first transceiver device based on the at least one of the plurality of frequency synchronization bursts; and

exchanging one or more data packets between the first and second transceiver devices.

2. The method as recited in claim 1 wherein transmitting a plurality of frequency synchronization bursts comprises:

transmitting the plurality of frequency synchronization bursts in a suitable pattern; and

transmitting frequency position information relative to each frequency synchronization burst with respect to the data packets, the information being

transmitted as a part of the frequency synchronization burst, the relative position of the frequency synchronization bursts being determined in terms of time and frequency.

3. The method as recited in claim 2 wherein adjusting the operating frequency of the second transceiver device comprises:

determining the frequency position information transmitted as a part of the frequency synchronization burst; and

changing the frequency of the second transceiver device based on the frequency position information, the frequency of the second transceiver device being changed to match the frequency of the first transceiver device.

4. The method as recited in claim 2 further comprising switching the second transceiver device to a low power sleep mode following reception of at least one synchronization burst.

5. The method as recited in claim 4 wherein switching the second transceiver device to a low power sleep mode comprises:

determining time position from the information transmitted with the frequency synchronization burst; and

switching the second transceiver device to a low power sleep mode for a duration determined by the time position.

6. The method as recited in claim 1 further comprising changing the adjusted frequency of the second transceiver device back to the original frequency of the second transceiver device, the adjusted frequency being changed after completion of the exchange of data packets.

7. The method as recited in claim 1 further comprising retaining the adjusted frequency of the second transceiver device after the completion of the exchange of packets.

8. The method as recited in claim 1 further comprising transmitting frequency synchronization bursts before a transmission of beacon packets, the transmission of beacon packets being executed by a network coordinator device.

9. The method as recited in claim 2 wherein transmitting the frequency synchronization bursts in a suitable pattern comprises transmitting the frequency synchronization bursts in a monotonic pattern.

10. The method as recited in claim 2 wherein transmitting the frequency synchronization bursts in a suitable pattern comprises transmitting the frequency synchronization bursts in a converging pattern.

11. The method as recited in claim 2 wherein transmitting the frequency synchronization bursts in a suitable pattern comprises transmitting the frequency synchronization bursts in a diverging pattern.

12. The method as recited in claim 2 wherein transmitting the frequency synchronization bursts in a suitable pattern comprises transmitting the frequency synchronization bursts in a single frequency pattern.

13. The method as recited in claim 2 wherein transmitting the information comprises transmitting a burst identification number, the burst identification number being unique to the frequency synchronization burst, the relative position of each frequency synchronization burst with respect to the data packets being predetermined and known to the first and second transceiver devices.

14. The method as recited in claim 2 wherein transmitting the information comprises:

transmitting the frequency position information, the frequency position information being the difference between the frequency at which the frequency synchronization burst is transmitted and the frequency at which the subsequent data packets are transmitted; and

transmitting time position information, the time position information being the time duration between the transmission of the frequency

synchronization burst and the transmission of the first of a possible plurality of data packets.

15. The method as recited in claim 2 wherein transmitting the information further comprises:

transmitting a device identification number, the device identification number being unique to the transceiver device; and

transmitting a network identification number, the network identification number being unique to the network of which the first transceiver device is a part.

16. The method as recited in claim 3 further comprising sharing the determined value of frequency position information with other transceiver devices within a communication network.

17. A method of compensating the frequency offsets between a primary communication device and a plurality of secondary communication devices, the primary and secondary communication devices communicating with each other in order to exchange data packets, the method comprising:

transmitting a plurality of frequency synchronization bursts from the primary communication device, the frequency synchronization bursts containing information about their relative position in terms of time and frequency with respect to the data packets;

receiving at each of the secondary communication devices at least one of the plurality of frequency synchronization bursts;

adjusting an operating frequency at each of the secondary communication devices to match the frequency of the primary communication device, the step of adjusting comprising:

i. determining the frequency position information from the frequency synchronization burst, and

ii. changing the operating frequency of the secondary communication devices based on the frequency position information, the frequency of the secondary communication devices being changed in order to match the frequency of the primary communication device; and

exchanging one or more data packets between the primary and secondary communication devices.

18. A system for compensation of frequency offset between a first transceiver device and a second transceiver device in a wireless environment, the system comprising:

a first transceiver device, the first transceiver device transmitting a plurality of frequency synchronization bursts and transmitting or receiving one or more data packets, the frequency synchronization bursts being transmitted prior to the transmission or reception of data packets; and

a second transceiver device, the second transceiver device receiving at least one of the plurality of frequency synchronization bursts, the second transceiver device adjusting its frequency to match the frequency of the first transceiver device, the adjustment being done in order to receive or transmit the data packets.

19. The system as recited in claim 18 wherein the frequency synchronization burst is a data packet comprising a burst identification number unique to the frequency synchronization burst, the relative position of each frequency synchronization burst with respect to the data packets being predetermined and known to the first and second transceiver devices.

20. The system as recited in claim 18 wherein the frequency synchronization burst is a data packet comprising information about:

relative position of the frequency synchronization burst with respect to the data packets in terms of time; and

relative position of the frequency synchronization burst with respect to the data packets in terms of frequency.

21. The system as recited in claim 20 wherein the information further comprises a device identification number unique to the first transceiver device.

22. The system as recited in claim 20 wherein the information further comprises a network identification number unique to network of which the first transceiver device is a part.

23. The system as recited in claim 18 wherein the first transceiver device is a transmit-only device.

24. The system as recited in claim 18 wherein the second transceiver device is a receive-only device.